

# Understanding and Applying Cost Categories to the Cost Estimating Process



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# Outline

- ❑ Common cost estimates mistakes
- ❑ Cost categories and cost elements
- ❑ Rates: what they are; How they are used
- ❑ A universal cost estimating format
- ❑ A practical cost estimating process



# Common Mistakes and Estimating Inadequacies

- ❑ Misinterpreting/misunderstanding requirements
- ❑ Lack of historical data
- ❑ Short sighted view of project benefits and costs
- ❑ Outdated estimating databases
- ❑ Reliance on “intelligent” guesses



# Common Mistakes... (Continued)

- ❑ Risks not adequately accounted for
- ❑ Proposal writing/cost estimating as additional duty
- ❑ Underused accounting systems
- ❑ Rate secrecy
- ❑ Arbitrary cost changes





# Cost Categories

- ❑ Direct costs: those costs that can be associated with a particular cost center or a specific contract.
- ❑ Indirect costs: those costs that cannot be associated with a particular cost center or contract.



# Split Cost Categories

- ❑ Material costs: direct costs if in the end product; Indirect if needed for other products as well.
- ❑ Administrative costs: direct if staff works directly for a project; Indirect if working in general support function.



# Common Cost Elements

- ❑ Overhead costs: costs associated with the comfort and well being of the employee
- ❑ Fringe benefits: costs associated with perks for the employee





# Common Cost Elements(continued)

- ❑ General and administrative costs.  
(G & A): costs associated with the well being and health of the company.
- ❑ Other direct costs: costs other than labor and materials that are directly attributable to the project.

# Application and Importance of Rates

**Required  
in Public  
Sector  
Bids**

**\$100,000**  
**+ 70,000**  
**170,000**  
**+ 20,000**  
**+ 15,000**  
**205,000**  
**+ 30,750**  
**235,750**  
**+ 23, 575**  
**\$259,325**

**Estimated labor costs**  
**70% OH**  
**Labor + OH**  
**Materials costs**  
**ODC (consultant)**  
**Total Cost + OH**  
**15% G & A**  
**Direct & Indirect costs**  
**10% Fee**  
**Total Price**

# Universal Cost Estimating Form

	HOURS	RATE	ESTIMATED COST	TOTAL COST
<b>DIRECT LABOR</b> Scientific Engineering Administrative <b>TOTAL DIRECT LABOR</b>				
<b>OVERHEAD</b> Scientific (% of Direct Labor) Engineering (% of Direct Labor) Administrative <b>TOTAL OVERHEAD</b>				
<b>MATERIALS</b> <b>TOTAL MATERIALS</b>				
<b>OTHER DIRECT COSTS</b> Subcontracting (Consultants) Travel (Per Diem & Transportation) <b>TOTAL ODCs</b>				
<b>GENERAL AND ADMINISTRATIVE</b> <b>TOTAL G &amp; A</b> <b>SUBTOTAL ALL COSTS</b>				
<b>FEE (% OF SUBTOTAL)</b>				
<b>TOTAL ESTIMATED PRICE</b>				



# Practical 10-step Cost Estimating Process

1. Develop WBS to lowest level
2. Identify and document task interdependencies
3. Develop estimates using expert judgment, historical data, industry guidelines



# Practical 10-step Cost Estimating Process

4. Determine skill levels, numbers, and commitment assumptions
5. Convert total effort to full-time equivalents
6. Assess non-resource duration issues



# Practical 10-step Cost Estimating Process

7. Develop rough task duration estimates, using steps 3 - 6
8. Produce schedules & critical path
9. Evaluate resource loading and risks
10. Document all assumptions and prepare universal cost estimate



# Consequences of Poor Estimating Processes

- ❑ No process, “intelligent” guesses, some experience: - 25% to +75% correct
- ❑ Some process, experience, some historical data: -10% to + 25% correct
- ❑ Good process, historical data, thorough analysis using lowest level WBS:  
-5% to + 10% correct







# Summary

- ❑ Cost estimates are historically too low
- ❑ Understanding of cost elements necessary to develop accurate costs
- ❑ Risks must be accounted for in costs
- ❑ Estimating processes must be documented and updated continually